

Scalable Affordable Housing Models



Reena, a non-profit housing provider dedicated to building and managing affordable supportive housing, has partnered with Serotiny, a leading firm in modular construction with a mission to make sustainability affordable.

Together, they created scalable solutions for affordable housing that uses hybrid mass timber construction to deliver high-quality housing efficiently and economically across multiple sites.

Key Advantages:

- Designed to meet CMHC's highest levels of scoring. Achieves B3 fire safety, 100% universal access, and operates at 40% below the targeted energy levels set by CMHC.
- Cost competitive with traditional Cast-in-Place (CIP) Concrete construction.
- Faster and more streamlined construction sequencing than Mass-Timber (CLT) construction by 6-8 weeks.
- Reduced rework with pre-engineered designs that can be reconfigured to different project needs and scaled across multiple sites.



Exceeds CMHC's highest levels of scoring for funding

- ✓ Depth of Affordability
- ✓ Energy Efficiency
- ✓ Accessibility

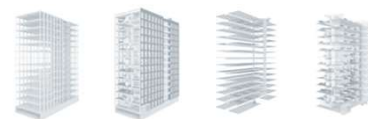


Globally proven & certified system



Reusable & reconfigurable designs

Complete building system



Structure + Envelope + Systems (MEP) + Program



Water resistant construction



B3 fire safety design



High energy efficiency

- ✓ 21% lower initial costs
- ✓ 59% lower lifecycle costs
- ✓ 56% lower annual operating cost
- ✓ 42% carbon emission reduction



6-8 weeks faster than CLT Mass Timber



Readily available supply

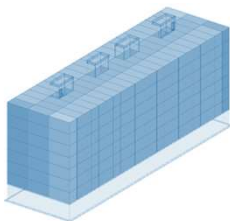


Cost & schedule certainty of modular system

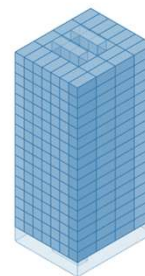
- ✓ Bulk Order Pricing
- ✓ Purchasing Power
- ✓ Exclusive Rates
- ✓ Detailed, Lifecycle Estimation

Scalable Affordable Housing Models

Bar Building



Tower Building



Floors

6-12 storeys

6-12 storeys

Units

135-297 units
135-297 beds

30-102 units
50-170 beds

Avg. Unit Size

745 SF

874 SF

Affordability

**Up to 100% deep
affordability***
ODSP min. as of 2024

**Up to 100% deep
affordability***
ODSP min. as of 2024

GFA

97,500-195,000 SF

42,000-126,000 SF

**Total Hard
Construction
Costs**

\$350-370 /SF
Cost of modular system
makes up average 28%

\$370-420 /SF
Cost of modular system
makes up average 30%

**Assembly
Time**


+/- 8 weeks
For modular system, based
on an 8-storey building


+/- 12 weeks
For modular system, based
on an 18-storey building

**Energy
Efficiency**

NECB 2020 Tier 3 
40-50% reduction

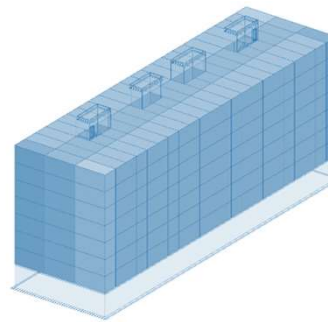
NECB 2020 Tier 3 
40-50% reduction

TGS v4 Tier 1-2* 
\$24-30 /bed
Monthly electricity costs
**Potential for Tier 2 with
additional measures*

TGS v4 Tier 1-2* 
\$27-56 /bed
Monthly electricity costs
**Potential for Tier 2 with
additional measures*




Bar Building

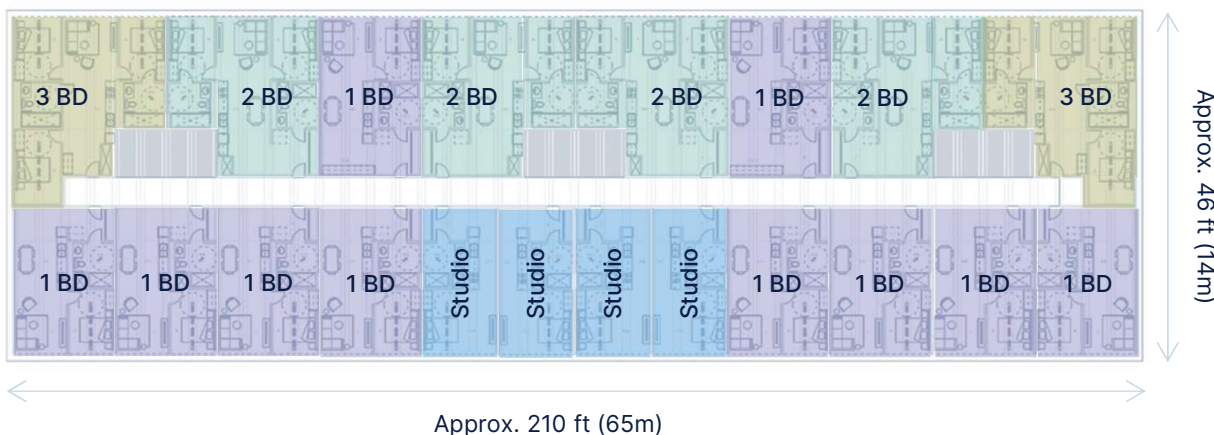


Key Parameters:

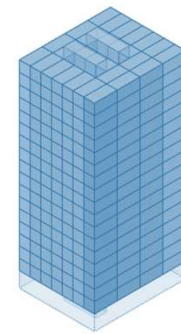
- Designed with a wider building footprint (approx. 16,000 square feet) to suit larger sites (approx. 1-acre).
- Adjustable building height from 6-12* floors. **Although the structural system can accommodate well in excess of 12 floors, this is the current permitted maximum set by the Ontario Building Code.*
- Fits up to 19 units per floor, or 95-209 units (135-297 beds) at max. height, and features a mix of large, family-sized units.
- Adjustable building length to suit a range of site conditions by removing/adding approx. 2 units per floor.

 <p>100% Universal Access</p>	 <p>40-50% Energy Reduction</p>
 <p>745 SF Average Unit Size</p>	 <p>Up to 209 units (or 297 beds)</p>
 <p>-/+ 8 weeks Assembly Time for Modular System</p>	 <p>Up to 100% Deep Affordability at ODSP min.</p>

<p>Studio 0 bed / 1 bath</p> <p>4 units/floor</p>	<p>1-Bedroom 1 bed / 1 bath</p> <p>9 units/floor</p>	<p>2-Bedroom 2 beds / 2 baths</p> <p>4 units/floor</p>	<p>3-Bedroom 3 beds / 3 baths</p> <p>2 units/floor</p>
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Tower Building

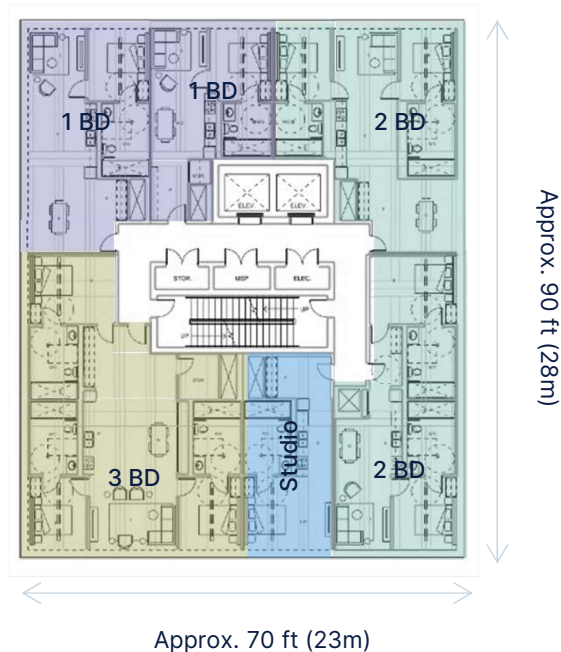


Key Parameters:

- Designed with a smaller building footprint (approx. 7,000 square feet) to suit tighter urban sites.
- Adjustable building height from 6-12* floors. **Although the structural system can accommodate well in excess of 12 floors, this is the current permitted maximum set by the Ontario Building Code.*
- Fits up to 6 units per floor, or 30-102 units (50-170 beds) at max. height, and features a mix of large, family-sized units.
- Adjustable building height to suit a range of density.

 <p>100% Universal Access</p>	 <p>40-50% Energy Reduction</p>
 <p>874 SF Average Unit Size</p>	 <p>Up to 102 units (or 170 beds)</p>
 <p>-/+ 12 weeks Assembly Time for Modular System</p>	 <p>Up to 100% Deep Affordability at ODSP min.</p>

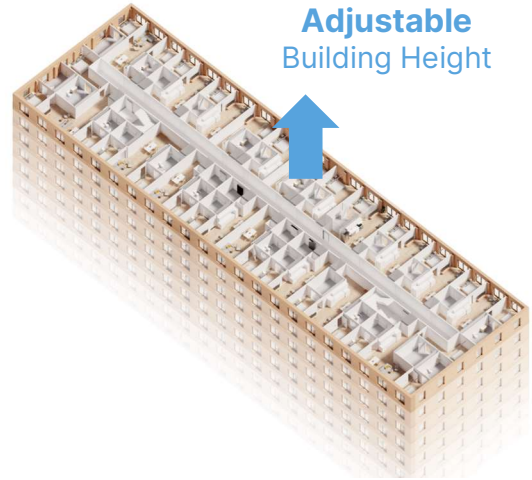
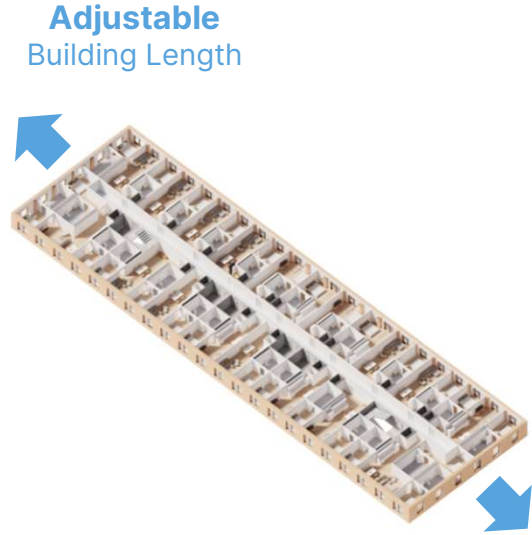
<p>Studio 0 bed / 1 bath</p> <p>1 units/floor</p>	<p>1-Bedroom 1 bed / 1 bath</p> <p>2 units/floor</p>
<p>2-Bedroom 2 beds / 2 baths</p> <p>2 units/floor</p>	<p>3-Bedroom 3 beds / 3 baths</p> <p>1 units/floor</p>



Reuse not Rework

Designs are pre-engineered to optimize reuse. The result is scalability across multiple sites without restarting the design, engineering and manufacturing cycle—saving time and cost to deliver even more housing.

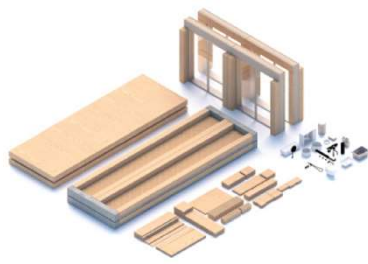
A library of unit layouts is adapted to specific size and massing requirements while maintaining high reuse of building components.



Key Benefits:

- High reuse of building components
- Flexibility in size and length
- Reuse appliance & millwork specification
- AODA compliant units as standard

Building Kit-of-Parts



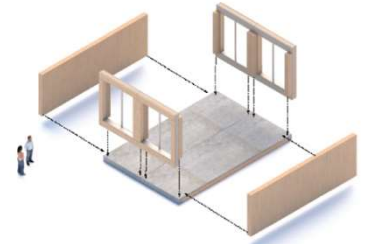
0BD-1BA-01
475 SF



1BD-1BA-01
634 SF



1BD-1BA-02
599 SF



2BD-2BA-01
950 SF



2BD-2BA-02
990 SF



3B-3BA-01
1,415 SF



Why Hybrid Mass Timber?

Serotiny has adapted a globally-proven hybrid mass timber system (CREE) with local supply chains across Canada to deliver housing at competitive costs to typical cast-in-place concrete construction, significantly reduced embodied carbon competitive to mass timber construction, and even better energy performance.

The hybrid mass timber structure comes pre-assembled with a fully integrated envelope system. This means that the final prefabricated panel that gets lifted and installed on-site is both the building's complete structure and envelope system.

As the panels get installed at an efficient rate of 3 panels/hour (220 face SF), not only is the building's structural system being completed, but the building is also being completely enclosed and weather-protected.

This advantage allows interior systems and finishes to begin immediately after and gain a 6-8 weeks schedule advantage over mass timber construction. (Whereas mass timber is highly sensitive to wet site conditions).



Advantages over Mass Timber Construction (MTC):

- Flexible design with no internal columns
- Higher acoustic and fire rating
- Standardized connection details
- Integrated cooling and heating in hybrid slab
- Lighter structure
- Under EMTC Timber encapsulation requirement
- Secured supply chain for Glulam
- Distributed manufacturing closed to the project
- Manufactured by majority non-skilled labor
- Faster installation compared to MTC
- Minimum MTC waterproofing during installation
- Lower general construction insurance premium



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